Fermilab E-906/SeaQuest Installation Update

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8 March 2010

1. Progress we've made
2. Plans for run
3. What needs to be done

Slides with help from the collaboration

Progress: NM4 Hall

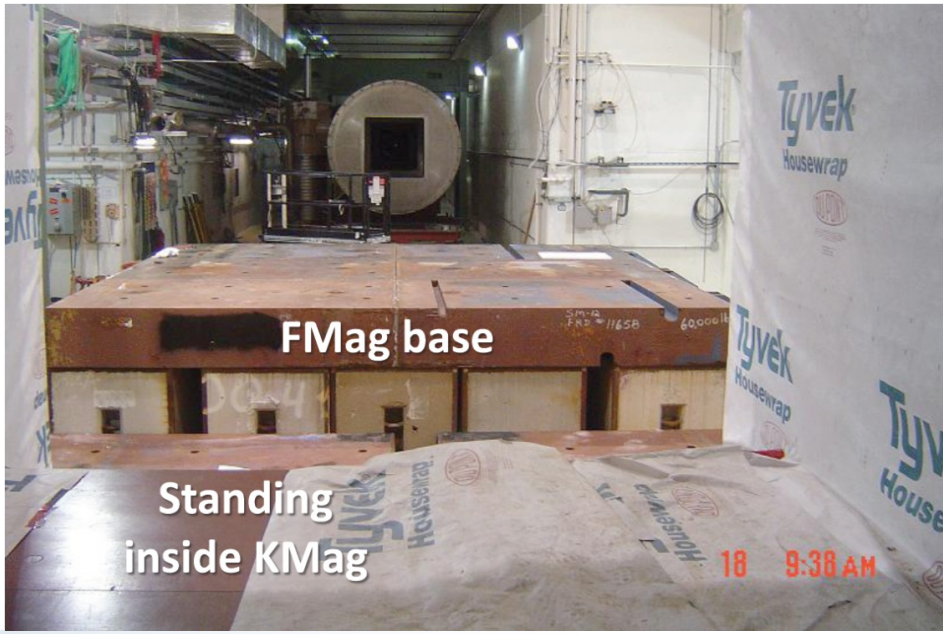
Cleanout—essentially done Dec. 2009

- KTeV detectors have been removed from the region needed for E906
  - Cable trays; KTeV cables need attention
  - Still some KTeV "junk" to be remove for adequate auxiliary working areas
- Resurvey of the NM4 Hall primary survey has been completed

Installation

- KMAG magnet moved to new position.
- Beam height raised from 95" to 95.5"
- Base blocks and first Fe layer of FMAG installed
- Station 2 frame moved in place, Station
- 2 drift chambers are now in place.
- Power bus extended to both magnets

Much thanks to Fermilab support!



Progress: Wire Chamber Repairs

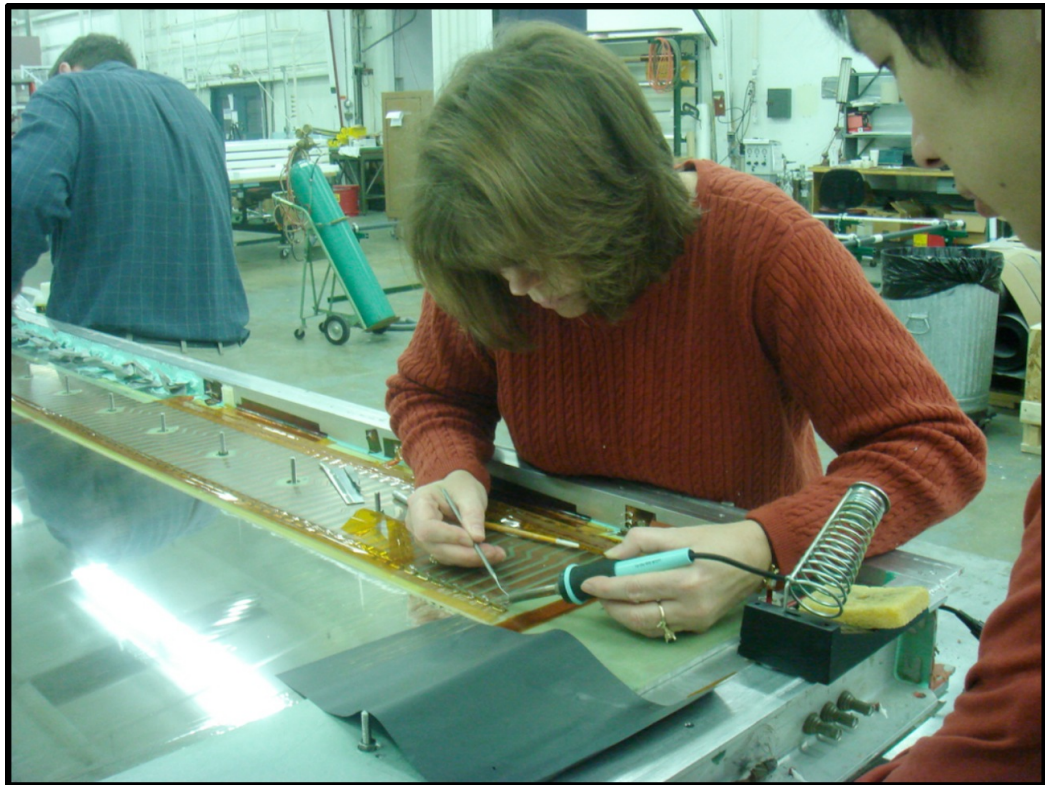
E-866/NuSea Station 2

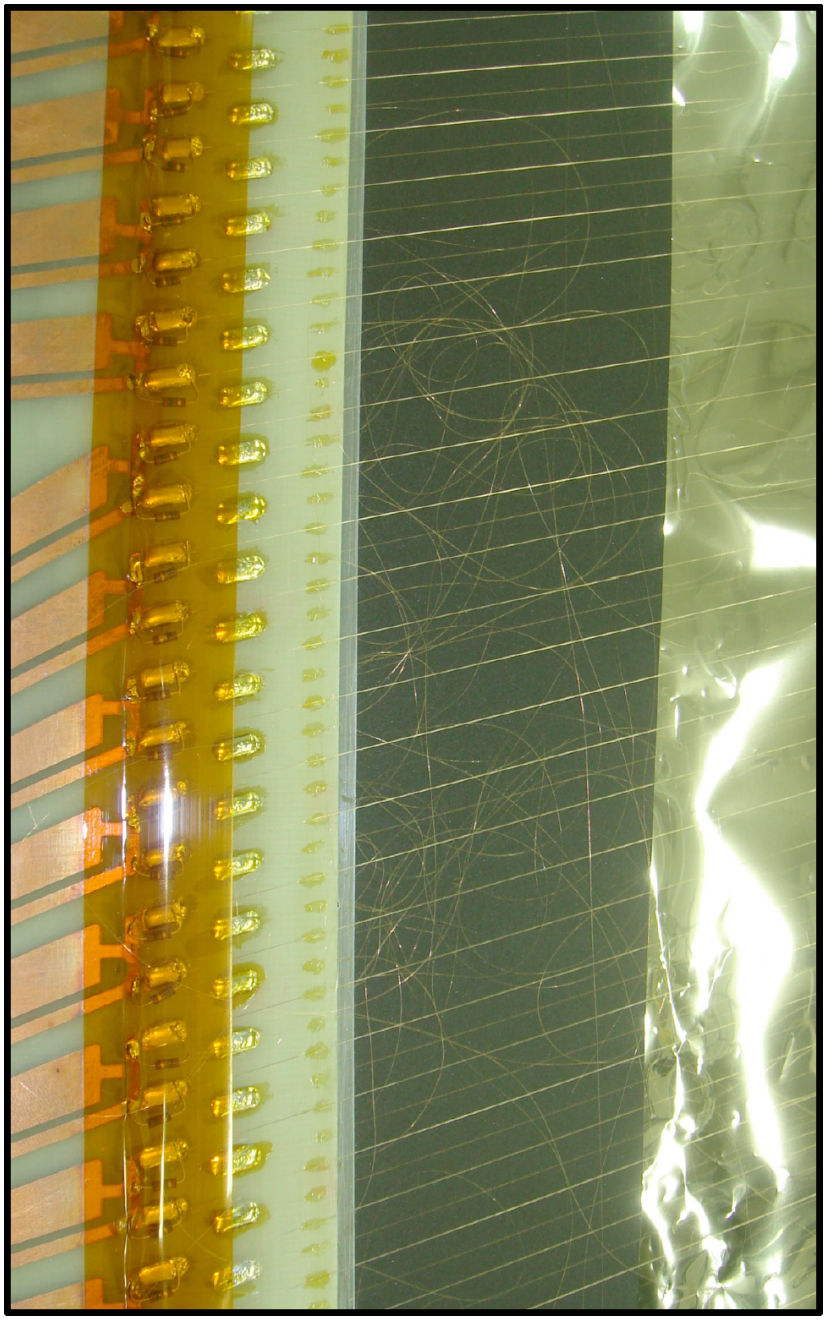
- Will become bottom half of E906 Station 3
- 3 chambers – U/U', Y/Y', V/V', 6 planes, 1 cm wire spacing, 1184 sense wires, 148 8-channel cards, 67" by 64" active area
- 5 of 6 planes had some broken wires
- Repaired in Lab 6 by Lamiaa, Kenichi, Shou, Dave Northacker, and Wanda Newby (a Fermilab tech); all now OK !!
- Took about 3 weeks to repair about 50 broken wires

E-866/NuSea Station 3

- Will be E-906 St. 2
- Up next in Lab. 6 (opened this afternoon)

Progress: Wire Chamber Repairs





Other Spectrometer Progress

- Hodoscope St. 1 & 2
  - HERMES Scint. Recutting at UIUC now
  - PMT testing at UIUC now
- Hodoscope St. 3 & 4
  - St. 4 Scint. Wrapped;
  - St. 3 ordered.
  - Approx . 2/3^{rds} of PMT's tested
- Tracking St. 1
  - Design in progress
  - **Ready for Post-summer shutdown**
- Tracking St. 2
  - Old E-866 Chambers
  - 1st one opened in Lab 6 today!
- Tracking St. 3+
  - Fabricated in Japan
  - Ships 1 April 2010
- Tracking St. 3-
  - Reconditioned in Lab 6
  - Gas Leak Checking
- Tracking St. 4
  - Prop. Tubes delivered to NM4
  - Testing underway
- Cryotargets
  - Cooldown tests at Michigan (1 cryocooler passed, 1 failed)
  - Motion table reconditioned
  - **Ready for Post-summer shutdown.**
- Electronics
  - Prototypes in testing
- Software
  - Data storage and decoding underway
  - Pattern recognition underway

The Plan

Ready for commissioning beam on 21 June 2010—before summer shutdown starting on 19 July 2010

- Goal:
  - Determine actual trigger and background rates
  - Exercise entire event chain

    Chamber->electronics->DAQ->data storage->decoding->reconstruction
- Expected Equipment
  - All Hodoscopes
  - Trigger
  - St. 4 Prop. Tubes (In NM4 almost ready to mount)
  - St. 3+ Tracking Chamber (to be shipped from Japan in April)
  - St. 3- Tracking Chamber (successfully reconditioned, but needs gas leak check)
  - St. 2 Tracking Chamber (still needs repair—started today)
  - Associated electronics (Prototypes being tested)
  - DAQ
  - Solid Target

  - Beam Line (Schedule under Fermilab control—not under collaboration control)

Needed to Achieve the Plan

- Continued cooperation with the chamber repairs (so far, **this has been excellent**!)
- Continued work on the magnet assembly (again, **this has been excellent so far**!)
- Mechanical support for spectrometers
- Additional space in KTeV Hall, now used for tape storage.

- Start on Safety Reviews— *the collaboration takes this seriously and recognizes that this will encompass significant effort for both the collaboration and Fermilab staff*
  - Mechanical
  - Electrical
  - Cryogenic
  - Chamber gas systems

  Please bear with us (me) as we (I) may be naïve about the process and ask questions that are apparently obvious.

- Engineering and technical support for beam line (*we are told the lack of engineering and mechanical tech effort in the AD may slow down work on the beam line*)